

Replace the paragraph beginning at page 1, line 22, with:

A2 Accordingly, there have been various methods of forming an insulating layer using a dielectric material having a low dielectric constant, for example, poly(benzoxazole) having a structure similar to that of polyamide and a low dielectric constant and exhibiting a good thermal stability, as disclosed in EP 903639, EP 905170, EP 391200, EP 291779, EP 5123339, and EP 3716629. However, since poly(benzoxazole) has a poor photoactive property, it cannot be readily to be used as an interlayer dielectric (ILD) or an intermetal dielectric (IMD).

Replace the paragraph beginning at page 2, line 1, with:

A3 U.S. Patent Nos. 5,114,780 and 5,115,082 disclose a dielectric material of fluorinated poly(acrylether) series, having a low dielectric constant of 2.6-2.7, which is however difficult to apply to a semiconductor manufacturing process due to its low glass transition temperature, that is, approximately 260°C. To overcome the application difficulty, an attempt to raise the glass transition temperature up to approximately 400°C has been made. However, in this case, the dielectric constant is undesirably increased to 2.8.

Replace the paragraph beginning at page 2, line 13, with:

A4 EP 0701283 A1 discloses a low dielectric material having a diamond-like structure of tetrahedral configuration of all carbon atoms contained therein, which is an inorganic material having excellent thermal and mechanical stability, compared to the earlier proposed low dielectric materials, which are generally organic materials having poor thermal mechanical stability. Nevertheless, in order to reduce the dielectric constant, which is still high due to the dielectric constant of diamond, that is, approximately 5.7, there has been an attempt to add hydrogen and fluorine, resulting in serious degradation of thermal stability.

Replace the paragraph beginning at page 2, line 21, with:

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U.S. Patent Nos. 5,470,802, 5,494,858, 5,504,042, and 5,523,615 disclose methods for reducing a dielectric constant by introducing air pores (for air, $k=1$) into SiO_2 or a polymer matrix such as polyamide. However, porous dielectrics based on the methods disclosed in the referenced patents have poor mechanical properties, a high hygroscopicity due to a high surface energy and a low dielectric strength.

Replace the paragraph beginning at page 2, line 26, with:

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As an ultra low dielectric constant material of 2.5 or less becomes highly demanded in the semiconductor device manufacturing process, it is necessary to develop a novel ultra dielectric constant material which can satisfy requirements of a low dielectric constant, that is excellent in thermal and mechanical properties, has a low tendency of absorbing moisture, and has a high electric strength.

Replace the paragraph beginning at page 12, line 23, with:

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The nano magnetic particle/PI composites were prepared using the matrix of PI having the above described properties. The nano magnetic fluid having 0.1 wt% solid content, prepared in step 3 of Example 1 and polyamic acid prepared in Example 2 were mixed in the ratio shown in Table 7, to prepare nano magnetic particle/polyamic acid, which was spin-coated at 2000 rpm for 60 seconds, 1 hour pre-baking was performed, and the temperatures were elevated step by step to 150°C, 200°C and 300°C at speeds of 5°C/min, 5°C/min and 2°C/min, respectively, each step having a dwell time of 1 hour, for imidization. Then, aluminum was deposited by thermal evaporation in the same manner as above to fabricate an electrode, and then a flat-panel capacitor. The dielectric constant of the resultant was measured using a Keithly CV analyzer (see Table 7). As shown in Table 7, while the dielectric constant of pure polyamide is 3.15, the dielectric constants of NC-3 containing 0.55 wt% nano particles with respect to PI is reduced to 2.51.

Replace the indicated claims with:

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3. (Amended) The composite according to claim 2, including spherical nano magnetic particles in addition to the non-spherical nano magnetic particles.

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5. (Amended) The composite according to claim 1, wherein the matrix is selected from the group consisting of silica, alumina, and hydrosilsesquioxane.

Sub 8

6. (Amended) The composite according to claim 1, wherein the matrix is selected from the group consisting of polyimide, PMMA, and methyl silsesquioxane.

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8. (Amended) The composite according to claim 7, including diamagnetic nano magnetic particles in addition to the superparamagnetic nano particles.

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11. (Amended) The composite according to claim 1, wherein the nano magnetic particles are selected from the group consisting of (γ -Fe₂O₃), chromium oxide (CrO₂), europium oxide (EuO), NiZn-ferrite, MnZn-ferrite, and yttrium-iron garnet.

A₁₂

21. (Amended) A method for manufacturing a composite comprising:
forming nano magnetic particles; and
distributing the nano magnetic particles in a dielectric matrix.

22. (Amended) The method according to claim 21, wherein forming nano magnetic particles includes mixing a cation surfactant with an anion surfactant of a metal salt to form a mixture and subjecting the mixture to chemical sedimentation to form non-spherical nano magnetic particles.